

tronic module assembly. An intermediate product or card with more or less flat outer surfaces is thus obtained.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0022] Other advantages and particular features of the assembly of the invention, of the method according to the present invention, and intermediate products obtained within the scope of the method, will appear more clearly upon reading the following description of embodiments of said assembly and said intermediate product, in addition to implementations of the intermediate product or card manufacturing method, which are given by way of non-limiting example. The description refers to the illustrative drawings, in which:

[0023] FIG. 1, already described, shows schematically an electronic module that can be integrated in a card according to the method of the present invention;

[0024] FIG. 2 shows a plate involved in a first embodiment of an assembly in accordance with the present invention;

[0025] FIG. 3A shows an electronic module being brought into an aperture of the plate of FIG. 2,

[0026] FIG. 3B shows a partial cross-section of a first embodiment of an assembly according to the invention,

[0027] FIG. 4 is a partial top view of the first embodiment of an assembly according to the invention;

[0028] FIGS. 5 and 6 show, respectively, and partially, first and second variants of the first embodiment of said assembly,

[0029] FIG. 7A is a partial top view of a plate involved in a third variant of the first embodiment of said assembly;

[0030] FIG. 7B is a partial top view of said third variant of the first embodiment of said assembly;

[0031] FIG. 8 shows partially a fourth variant of said first embodiment of said assembly;

[0032] FIG. 9 is a partial top view of a second embodiment of the assembly according to the invention,

[0033] FIG. 10 is a partial top view of a variant of said second embodiment of said assembly;

[0034] FIG. 11 is a partial top view of a third embodiment of an assembly according to the invention;

[0035] FIG. 12 is a partial top view of a fourth embodiment of an assembly according to the invention;

[0036] FIG. 13 is a partial cross-section along the line XIII-XIII of FIG. 12;

[0037] FIG. 14 shows schematically a partial top view of a variant of the fourth embodiment of said assembly;

[0038] FIG. 15 is a partial cross-section along the line XV-XV of FIG. 14;

[0039] FIG. 16 is a partial cross-section of an intermediate product according to the present invention, which is produced in a method of manufacturing cards according to the present invention;

[0040] FIG. 17 is a partial cross-section of an alternative embodiment of an intermediate product according to the invention;

[0041] FIG. 18 is a partial cross-section of another alternative embodiment of an intermediate product according to the invention;

[0042] FIG. 19 is a partial cross-section of a card obtained according to a manufacturing method of the invention from the intermediate product shown in FIG. 17;

[0043] FIG. 20 shows schematically another implementation of the card manufacturing method of the invention. This method can also being be applied to make an intermediate product according to the present invention;

[0044] FIG. 21 is a partial cross-section of a plurality of cards that result from the method described in FIG. 20; and

[0045] FIG. 22 shows schematically an alternative embodiment of a plurality of cards or intermediate products that also result from the method described in FIG. 20.

#### DETAILED DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

[0046] With reference to FIGS. 2 to 4, we will now describe a first embodiment of an assembly according to the invention, which is produced in a card manufacturing method, also in accordance with the invention. The method of the invention is particularly well suited to manufacturing cards in batches, i.e. manufacturing several cards simultaneously. The assembly 22 shown partially in FIG. 4 includes several electronic modules 2 for manufacturing several batches of cards. However, it will be noted that the present invention is not limited to the batch manufacture of cards, but can also, in a particular variant, apply to card-by-card manufacture, i.e. individual card manufacture.

[0047] Assembly 22 includes a plate 14 that has at least one, at least partially through aperture 16, and at least one electronic module 2 at least partially housed in said at least one aperture 16. In the example shown in FIG. 2, plate 14 has a plurality of through apertures 16 and defines as many frames for electronic modules 2 as there are modules housed in said apertures 16. The plate defines a positioning structure for the electronic modules. According to the invention, projecting portions 18 are arranged at the periphery of each aperture 16. In the variant shown in FIGS. 2 to 4, two projecting portions 18 are arranged on two opposite sides of aperture 16, substantially along a diagonal of said aperture. It will be noted, however, that there can be any number of projecting parts and they can be arranged anywhere along the periphery of each aperture 16. Preferably, at least two projecting portions are provided in each aperture 16. These projecting portions form stop members for the electronic modules inserted in the apertures.

[0048] FIGS. 2 and 4 show, in dotted lines 20, the final periphery of each card obtained from the manufacturing method of the invention, in which assembly 22 is involved. In a conventional manner, each card obtained is cut out by means known to those skilled in the art. FIG. 3A shows plate 14 in the cross-sectional plane III-III of FIG. 2. The thickness or height of projecting portions 18 is less than that of plate 14. Projecting portions 18 are formed before electronic module 2 is brought, in a variety of manners. These portions can be obtained by hot or cold pressing in a press. They can also be obtained using an ultrasound head or a head generating a high frequency electric field. This provides an initial plate 14 of constant thickness, pierced with apertures 16 that have projecting portions. Next, the thickness of the projecting portions is reduced, by a tool or head acting in a localised manner on these projecting portions. This step can be performed quickly and efficiently using one of the aforementioned means. In another variant of plate 14, the thickness of projecting portions 18 is reduced by machining, in particular by using a milling cutter. In another variant, plate 14 is formed of two layers, laminate welded to each other, the bottom layer including projecting portions 18, whereas the top layer has rectangular apertures that match apertures 16 in the projecting portions. Projecting portions 18 can thus be made by any means known to those skilled in the art.